1. Apparatus for detecting the thickness of layers of groundwater and any non-electrically conductive light or dense non-aqueous phase liquid (LNAPL or DNAPL), respectively, in a well comprising:

(a) an elongated sensor extending down the length of the well and having

(a-1) a conductive liquid-sensing circuit, including a first resistive network of serially connected resistors, for sensing electrically conductive liquids only;

(a-2) a hydrostatic sensing circuit that responds to the actuation pressure of conductive and non-conductive liquids, said hydrostatic sensing circuit including a second resistive network of serially connected resistors;

(b) electrically conductive liquid measuring means, electrically coupled to said first resistive network, for producing a conductive liquid signal proportional to the thickness of a layer of conductive liquid in said well; and

(c) electrically conductive and non-conductive liquid measuring means, coupled to said second resistive network, for producing an all liquids signal proportional to the thickness of all liquids in said well including both conductive and non-conductive liquids.

2. The apparatus of claim 1 including DNAPL measuring means coupled to a lower portion of said first resistive network at a well bottom portion for detecting the possible presence of an DNAPL layer adjacent said well bottom portion.

3. The apparatus of claim 2 wherein said DNAPL measuring means includes means for measuring the resistance of said first resistive network which is proportional to the thickness of said DNAPL layer adjacent said well bottom portion.

4. The apparatus of claim 1 including LNAPL measuring means coupled to an upper portion of said second resistive network at a well top portion for

detecting the possible presence of an LNAPL layer adjacent said well top portion.

5. The apparatus of claim 4 wherein said LNAPL measuring means includes means for comparing the resistance of said first resistive network with the resistance of said second resistive network.

6. The apparatus of claim 3 including LNAPL measuring means coupled to an upper portion of said second resistive network at a well top portion for detecting the possible presence of an LNAPL layer adjacent said well top portion.

7. The apparatus of claim 6 wherein said LNAPL measuring means includes means for comparing the resistance of said first resistive network with the resistance of said second resistive network.

8. Apparatus of claim 1 wherein said elongated sensor includes a well depth sensing circuit, including a third resistive network of serially connected resistors and well depth measuring means coupled to said third resistive circuit for producing a signal proportional to well depth.

9. Apparatus of claim 2 wherein said elongated sensor includes a well depth sensing circuit, including a third resistive network of serially connected resistors and well depth measuring means coupled to said third resistive circuit for producing a signal proportional to well depth.

10. Apparatus of claim 3 wherein said elongated sensor includes a well depth sensing circuit, including a third resistive network of serially connected resistors and well depth measuring means coupled to said third resistive circuit for producing a signal proportional to well depth.

11. Apparatus of claim 4 wherein said elongated sensor includes a well depth sensing circuit, including a third resistive network of serially connected resistors and well depth measuring means coupled to said third resistive circuit for producing a signal proportional to well depth.

12. Apparatus of claim 1 wherein said elongated sensor comprises a tape coupled to tape support means extending along the length of the well for

retaining said tape in place within said well between well inspections thereby eliminating lowering sensors into said well that may require subsequent decontamination procedures.

13. Apparatus of claim 2 wherein said elongated sensor comprises a tape coupled to tape support means extending along the length of the well for retaining said tape in place within said well between well inspections thereby eliminating lowering sensors into said well that may require subsequent decontamination procedures.

14. Apparatus of claim 3 wherein said elongated sensor comprises a tape coupled to tape support means extending along the length of the well for retaining said tape in place within said well between well inspections thereby eliminating lowering sensors into said well that may require subsequent decontamination procedures.

15. Apparatus of claim 4 wherein said elongated sensor comprises a tape coupled to tape support means extending along the length of the well for retaining said tape in place within said well between well inspections thereby eliminating lowering sensors into said well that may require subsequent decontamination procedures.

16. Apparatus of claim 1 wherein said conductive liquid sensing circuit includes a conductive liquid sensing means is coupled to each resistor of said first resistive network for effectively removing a resistor from said first resistive network should a conductive liquid contact said conductive liquid sensing means.

17. Apparatus of claim 2 wherein said conductive liquid sensing circuit includes a conductive liquid sensing means is coupled to each resistor of said first resistive network for effectively removing a resistor from said first resistive network should a conductive liquid contact said conductive liquid sensing means.

18. Apparatus of claim 3 wherein said conductive liquid sensing circuit includes a conductive liquid sensing means is coupled to each resistor of said first resistive network for effectively removing a resistor from said first resistive network should a conductive liquid contact said conductive liquid sensing means.

19. Apparatus of claim 4 wherein said conductive liquid sensing circuit includes a conductive liquid sensing means is coupled to each resistor of said first resistive network for effectively removing a resistor from said first resistive network should a conductive liquid contact said conductive liquid sensing means.

20. Apparatus of claim 5 wherein a conductive liquid sensing means is coupled to each resistor of said first resistive network for effectively removing a resistor from said first resistive network should a conductive liquid contact said conductive liquid sensing means.

21. Apparatus of claim 12 wherein each conductive liquid sensing means includes an associated tiny conductive contact positioned within said tape, thereby enabling very precise liquid level measurements.

22. Apparatus for detecting the thickness of layers of groundwater and any non-electrically conductive light or dense non-aqueous phase liquid (LNAPL or DNAPL), respectively, in a well comprising:

(a) an elongated sensor extending down the length of the well and having

(a-1) a conductive liquid sensing circuit, including a first resistive network of serially connected resistors, for sensing electrically conductive liquids only;

(a-2) a hydrostatic sensing circuit that responds to the actuation pressure of conductive and non-conductive liquids, said hydrostatic sensing circuit including a second resistive network of serially connected resistors;

(b) electrically conductive liquid measuring means, electrically coupled to said first resistive network, for producing a conductive liquid signal proportional to the thickness of a layer of conductive liquid in said well;

(c) electrically conductive and non-conductive liquid measuring means, coupled to said second resistive network, for producing an all liquids signal proportional to the thickness of all liquids in said well including both conductive and non-conductive liquids;

(d) DNAPL measuring means, coupled to a lower portion of said first resistive network at a well bottom portion, for detecting the measured resistance of said first resistive network indicating the thickness of any DNAPL layer adjacent said well bottom portion;

(e) LNAPL measuring means, coupled to an upper portion of said second resistive network at a well top portion for comparing the resistance of said first resistive network with the resistance of said second resistive network.

23. Apparatus of claim 22 wherein said conductive liquid sensing circuit includes a conductive liquid sensing means coupled to each resistor of said first resistive network for effectively removing a resistor from said first resistive network should a conductive liquid contact said conductive liquid sensing means.

24. Apparatus of claim 23 wherein each conductive liquid sensing means includes an associated tiny conductive contact positioned within said tape, thereby enabling very precise liquid level measurements.

25. Apparatus of claim 22 wherein said elongated sensor includes a well depth sensing circuit, including a third resistive network of serially connected resistors and well depth measuring means coupled to said third resistive circuit for producing a signal proportional to well depth.

26. Apparatus of claim 23 wherein said elongated sensor includes a well depth sensing circuit, including a third resistive network of serially connected resistors and well depth measuring means coupled to said third resistive circuit for producing a signal proportional to well depth.

27. Apparatus for detecting the thickness of layers of groundwater and any non-electrically conductive light or dense non-aqueous phase liquid (LNAPL or DNAPL), respectively, in a well comprising:

(a) an elongated sensor extending down the length of the well and having

(a-1) a conductive liquid sensing circuit for sensing electrically conductive liquids only;

(a-2) a hydrostatic sensing circuit that responds to the actuation pressure of conductive and non-conductive liquids;

(b) electrically conductive liquid measuring means, electrically coupled to said conductive liquid sensing circuit for producing a conductive liquid output signal proportional to the thickness of a layer of conductive liquid in said well;

(c) electrically conductive and non-conductive liquid measuring means, coupled to said hydrostatic sensing circuit for producing an all liquids output signal proportional to the thickness of all liquids in said well including both conductive and non-conductive liquids;

(d) a data processor positioned at the top of said well for processing said conductive liquid signals and said all liquids signals for determining thickness of layers of groundwater and any non-electrically conductive light or dense non-aqueous phase liquid in said well.

28. A sensor for measuring thickness of liquids in a well comprising:

(a) a tape, permanently positioned along the length of said well and having closely spaced electrically conductive contacts extending along the length of said well; and

(b) a movable electrically conductive strip, positioned closely adjacent to said electrically conductive contacts, enabling said strip to press against said contacts in response to pressure sensed by said strip due to the

presence of a liquid column.

29. A sensor for measuring thickness of aqueous liquid layers in a well comprising:

(a) a tape permanently positioned along the length of said well and having closely spaced electrically conductive contacts extending along the length of said well; and

(b) an array of switches, each switch being positioned adjacent an associated one of said electrically conductive contacts, for assuming a first state in the presence of water and for assuming a second state in the absence of water.